COAL MINING

October, 1960 Volume 37, No. 10

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No matter where you work in Western Pennsylvania, northern Maryland or northern West Virginia, you are never far from one of Beckwith's six conveniently located shops. Caterpillar servicemen are readily available to assist you in keeping your machines in top producing condition.

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Walter W. Coldren
Used Equipment Manager

HERE ARE TYPICAL BECKWITH BARGAINS:

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ITEM P-66:
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Location: Pittsburgh, Pennsylvania
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Visit any of our six Service Centers for more information or call our sales department for the machine you need. Our stock of used machines changes daily so if we don't have the exact item you want, at the price you want to pay, we can probably find it for you.

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ROUTE 219 NORTH, SOMERSET, PENNSYLVANIA
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COAL MINING

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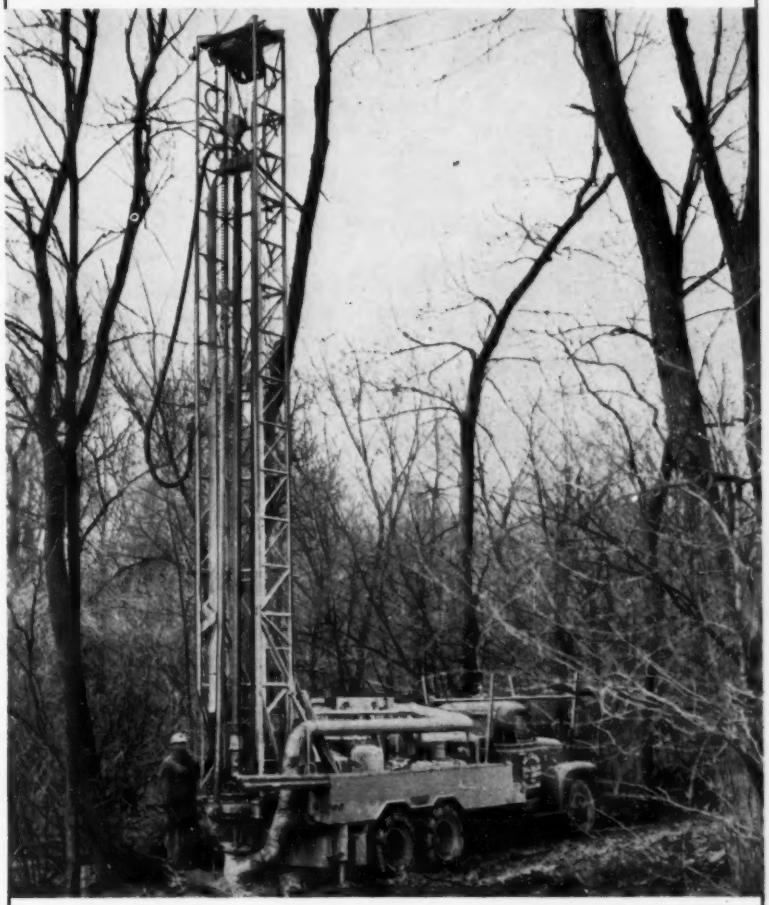
Davey Model M-75A Rotary Drill coal testing for Harbaugh Coal Co., Madison, Pa. Working in the woods, it is drilling 300 ft. holes.



a modern drill for modern mining

Breaks Production Traffic Jams

Davey Rotary Drills are faster in and out of blast holes . . . move rapidly between holes. They cut blasting costs . . . increase effectiveness of blasts . . . speed overburden removal.

. . . these are just a few of many reasons why more and more leading mine operators and coal drilling contractors are standardizing on Davey.

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Write for Bulletin E-702S

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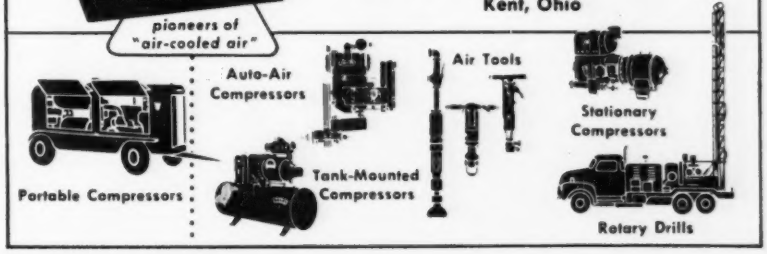
Kent, Ohio



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TO SERVE YOU BETTER!

TWO-SHIFT

OPERATION in PITTSBURGH

PARTS and SERVICE

DEPARTMENTS

7 a.m. to 11:15 p.m. Weekdays

8 a.m. to Noon Saturdays

Now You Can Get Pittsburgh Shop Repairs Twice as Fast . . . at No Extra Cost!

Mike Trugan
Pittsburgh Service Manager

To provide you with better and quicker service . . . Beckwith's Pittsburgh Parts and Service Departments have been placed on a double-shift basis. In effect this means that repair jobs at this location can be done in half the number of days without any special increase in rate. Your Caterpillar equipment gets back on the job faster to earn more profits for you.

If you have an assembly or small repair job, such as a master clutch, you can bring it in the late afternoon and it will probably be ready for you the next morning . . . keeping your downtime to only a few hours.

In addition to these advantages on Pittsburgh Shop jobs, our earlier hours permit our Caterpillar-trained field servicemen to be on your job an hour sooner than was possible in the past.

Keep in mind that you can bring your machines in for minor repairs or major re-building any time from 7 a.m. to 11:15 p.m. weekdays. Take advantage of this two-shift operation to reduce your downtime . . . and still enjoy the benefits of experienced Caterpillar mechanics working with specialized tools.

Here's Added Convenience, Faster Service in Ordering and Pick-Up of Cat Parts

Frank A. Dunham
Pittsburgh Parts Manager

Many Caterpillar machine owners appreciate the added convenience of placing their parts orders late in the day or early in the morning. To the owner-operator this can mean valuable daylight time saved for actual machine work hours on the job. Parts can be ordered from Pittsburgh as late as 10 p.m. for pick-up at 7 a.m. the next day.

Our double-shift operation pays off for you in other advantages, too. Our expeditor can work with Caterpillar Parts Depots as late as 9:30 p.m. to speed delivery of parts not ordinarily carried in stock.

On Saturday our Pittsburgh Parts Departments and Shop are open until noon as usual. We sincerely trust you will find this new Beckwith Service of early and late hours helpful to your business.

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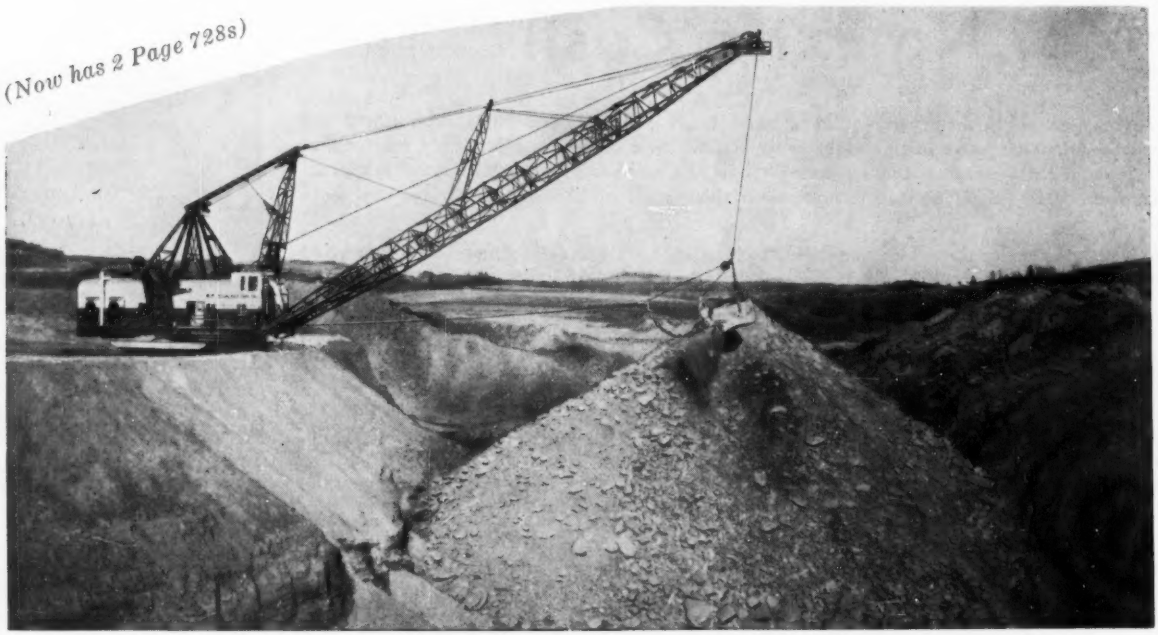
Earthmoving Equipment Is Our Business—Service, Our Concern

296,000 yds. Overburden per Month

averaged by this Model 728 Page Dragline with 150 ft. boom and 12 yd. bucket.



Overburden 60 to 80 ft., coal seam 34 in., so average ratio of overburden to coal is 24.7
Working three 8-hr. shifts, six days a week, uncovered

144,000 tons of Coal in 12 Months

RATIO 24.7 to 1

One of two Model 728 Page Draglines owned by W. P. Stahlman Coal Co., Corsica, Pa.

Page Draglines are built with booms up to 225 ft. in length, and bucket sizes to 25 yards - - both Diesel and full Electric.

You need SPEED for low cost stripping. Page walkers swing unusually fast, with a correspondingly fast hoist line speed. The result — quicker cycles and more yardage.

And you need LOW MAINTENANCE COST such as reported by users of Page Draglines with V-Type Diesels, designed specifically for dragline work — with bigger bearings and pistons, and slow speed, 450 RPM — producing ample power with low operating cost. (Can also be furnished with Electric Power).

For MORE RECORDS of increased outputs and lower stripping costs — write, wire or phone —

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Hazleton National Bank Bldg.
Hazleton, Pa., Phone Gladstone 5-3658

For High Production and Lowest Operating costs—

NOTHING equals this PAGE 700 series

SINGLE DECK WALKING DRAGLINES

Do You Know?

● Creative thinking is helped by doing the whole job rather than by extreme division of labor.

This was reported by Dr. Abraham S. S. Luchins of the University of Florida, Miami, to a conference on the psychology of thinking sponsored by the New York Academy of Sciences.

A relatively high degree of freedom of action is also involved in creative production, he said.

Yet while creativity is highly individual, it is also a social concern. Society helps determine what will be considered creative.

● A gram-negative species of bacteria called pseudomonas is outstripping staphylococcus as a cause of fatal infection in burn patients.

Lieut. Col. Wilfred T. Tumbusch, Brooke Army Medical Center, Fort Sam Houston, Texas, told the First International Congress on Research in Burns here today that pseudomonas organisms have become a major threat, whereas staphylococcus organisms have been declining in importance.

Col. Tumbusch said pseudomonas infections appear to be invariably fatal to burned patients.

In a study of 596 burn patients treated at Brooke between 1954 and 1959, Col. Tumbusch said that 77 died of infection. He said either Staphylococcus aureus (golden staph) or Pseudomonas aeruginosa (an organism that produces blue pus) or both were found in the wounds of 66 of these patients.

Although there were 17 survivors of severe burns with septicemia (blood poisoning) in the five-year period, there were no survivors of Pseudomonas septicemia. Death occurred in spite of prompt therapy with Polymixin B and colistin sulfate, the most effective antibiotics against the pseudomonas organism.

Col. Tumbusch said pseudomonas organisms have been found increasingly in burn surfaces since 1954, and since 1956 have been the most common organisms in burn wound cultures.

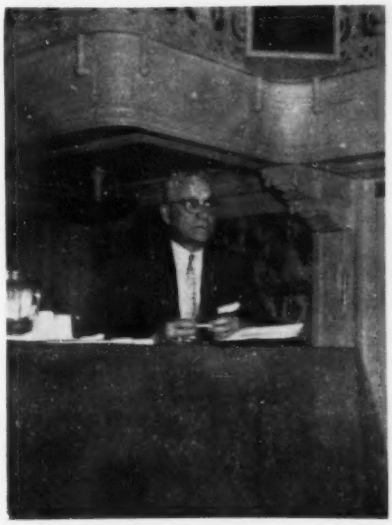
He said the cause of the increase is not known. He suggested that the increase of pseudomonas septicemia and the fall of staph invasions "may represent normal cycles of propagation of the species, and a return to the previous ratios may be forthcoming.

"If the trend, however, is real, invasion by Staphylococcus aureus, which has been 74% fatal, is being replaced by pseudomonas invasion, which has been lethal in all patients," he said.

Col. Tumbusch believes that in a fatal burn case in which the patient has an infection, the infection is the cause of death. He said hope for improvement in this situation lies in the control of the effects of gram-negative bacteria infection.

HERE AND THERE IN THE COAL INDUSTRY

● W. E. (Bill) Hess, General Manager of Mines for the Jones & Laughlin Steel Corp. was stricken with a heart attack in San Francisco, California while on vacation which included a visit with his son



Bill Hess acting as Chairman of one of the Sessions at the Annual Meeting of the Coal Mining Institute of America last December.

who is stationed at a Naval Training Station in the San Francisco area. About two weeks after his heart attack Bill was sitting up in bed and expected to return to his home in California, Pa. about the middle of October.

● Internationally known consulting mining engineer Carel Robinson died at his Charleston home after a short illness.

The 79-year-old Coalburg native was chairman of the board of Robinson and Robinson. He and his son, Neil Robinson II, had operated under this firm name since 1940.

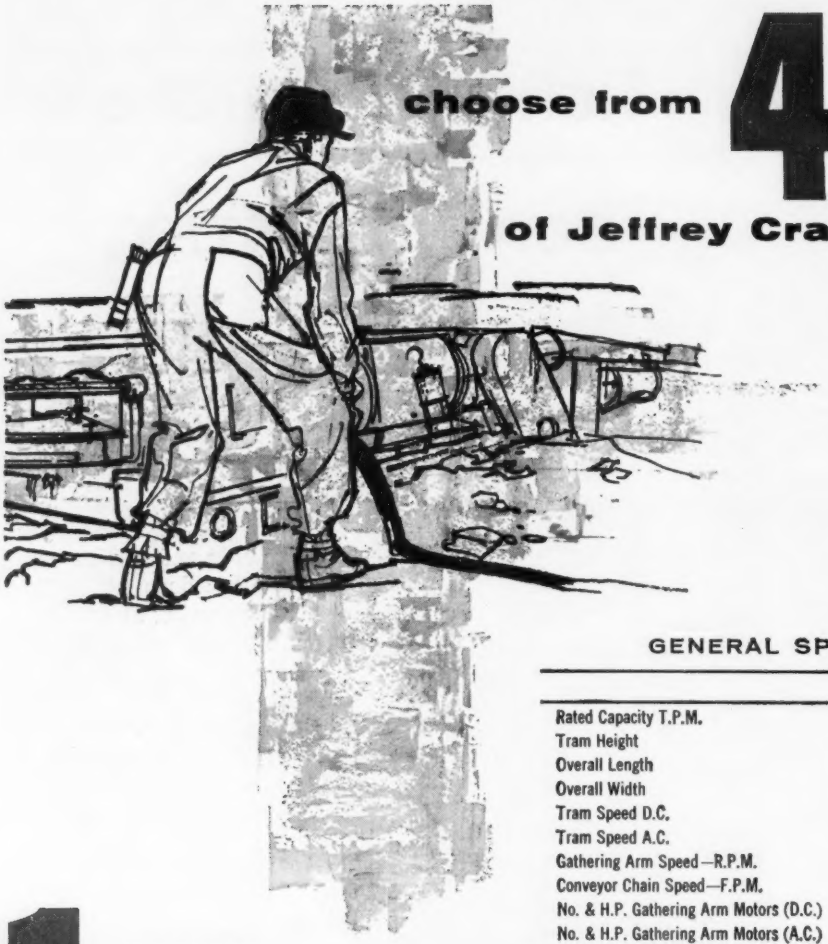
Mr. Robinson's consulting engineering work included studies by him and his firm of the entire Belgian coal industry as well as French, German and Turkish mines under the auspices of the Marshall Plan and on coal properties in all major coal producing areas of the U. S. , Canada and Alaska.

He also has done extensive consulting engineering in Russia.

Mr. Robinson was a son of the late Neil and Jessie Stem Robinson. He was educated in Charleston schools and at West Virginia University. After his graduation from college, he joined his father, now deceased, who was an outstanding consulting engineer and writer in the coal industry.

● The Smokeless Operators Association elected James B. Wooldridge, Jr., as secretary to succeed the late B. B. Housman, who died. Other officers of the Association were reelected at the group's annual meeting in Bluefield, W. Va.: president, S. Austin Caperton, Slab Fork Coal Co.; vice president, W. W. Walker, Ashland Mining Corp.; and Treasurer, Norton Stone, United Pocahontas Coal Co. The following members of the executive committee, in addition to the Association officers, were reelected: John J. Foster, Island Creek Coal Co.; W. A. Haslam, Winding Gulf Coals Inc.; R. B. Williamson, Amigo Smokeless Coal Co.; H. John Harper, Eastern Gas & Fuel Associates; Warren F. Leatherman, Crozer Coal & Land Co.; Leonard J. Timms, New River & Pocahontas Consolidated Coal Co.; Roland C. Luther, Pocahontas Fuel Co.; and Paul Morton, Cannelton Coal Co. A. S. Kemper, Jr., Premier Pocahontas Co., was added to the executive committee.

choose from 4 types of Jeffrey Crawler-Loaders



GENERAL SPECIFICATIONS

	81-C	81-AL	81-AH	97-A
Rated Capacity T.P.M.	10	10	10	18
Tram Height	25″	32″	36″	43″ or 48″
Overall Length	25′-8½″	24′-1″	24′-1″	25′-11″
Overall Width	7′-5¼″	7′-5¼″	7′-5¼″	7′-8″
Tram Speed D.C.	137	137	137	160
Tram Speed A.C.	85	85	85	160
Gathering Arm Speed—R.P.M.	55	55	55	53
Conveyor Chain Speed—F.P.M.	372	372	372	360
No. & H.P. Gathering Arm Motors (D.C.)	2—15	2—15	2—15	2—25
No. & H.P. Gathering Arm Motors (A.C.)	2—20	2—20	2—20	2—33
No. & H.P. Conveyor Motors (D.C.)	Uses Gathering Arm Motors			2—10
No. & H.P. Conveyor Motors (A.C.)	Uses Gathering Arm Motors			2—20
No. & H.P. Tram Motors (D.C.)	2—15	2—15	2—15	2—25
No. & H.P. Tram Motors (A.C.)	2—20	2—20	2—20	2—33/8.25
H.P. Pump Motor—A.C. or D.C.	4	4	4	8
Weight in lbs. approx.	21000	21000	21000	38000

Voltages: Loaders can be built for operation on any of the following voltages: 250 or 500 V, DC; 440 V, AC, 3-ph., 60-cy, 415 V, AC, 3-ph., 50-cy.

1 height

Four loaders with five heights, means you can put the correct height loader in the seam height for which it's designed. This assures proper clearance for lumps and convenient height of controls for the operator.

2 power

Available for direct current or alternating current power. Liberal size motors.

3 capacity

Jeffrey Loaders are setting high tonnage records with low maintenance cost and very little down time.

Get complete information—
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JEFFREY

MINING • CONVEYING • PROCESSING EQUIPMENT...TRANSMISSION MACHINERY...CONTRACT MANUFACTURING

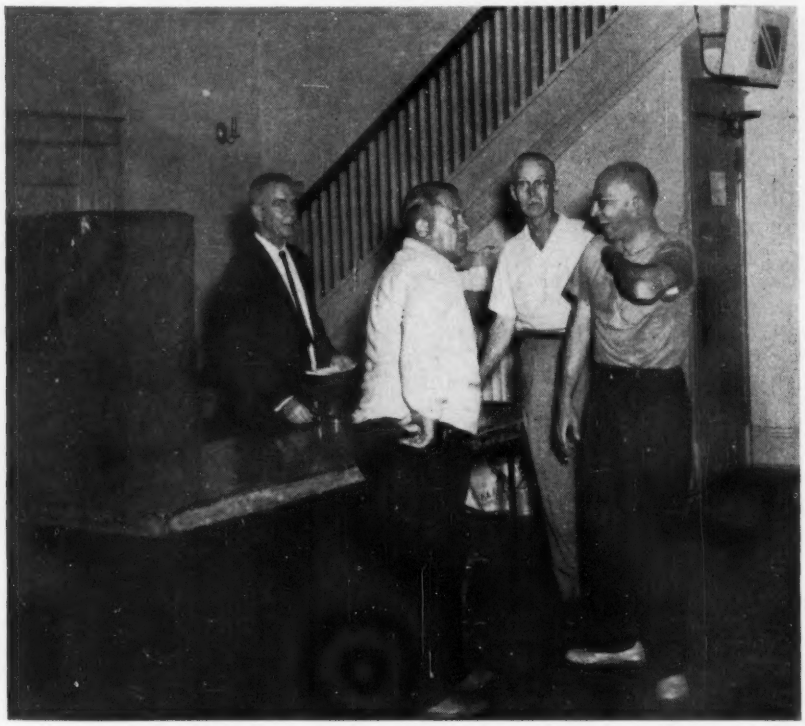
Annual Outing Of The Central Pennsylvania Open Pit Mining Association

● The 1960 Annual Outing of the Central Pennsylvania Open Pit Mining Association was held at the Clearfield Country Club, Clearfield, Pa. A new plan of limiting to 3 the number of guests each member may invite, thus eliminating the large number of attendants at previous outings who had little or no connection with the industry, appeared to be highly successful.

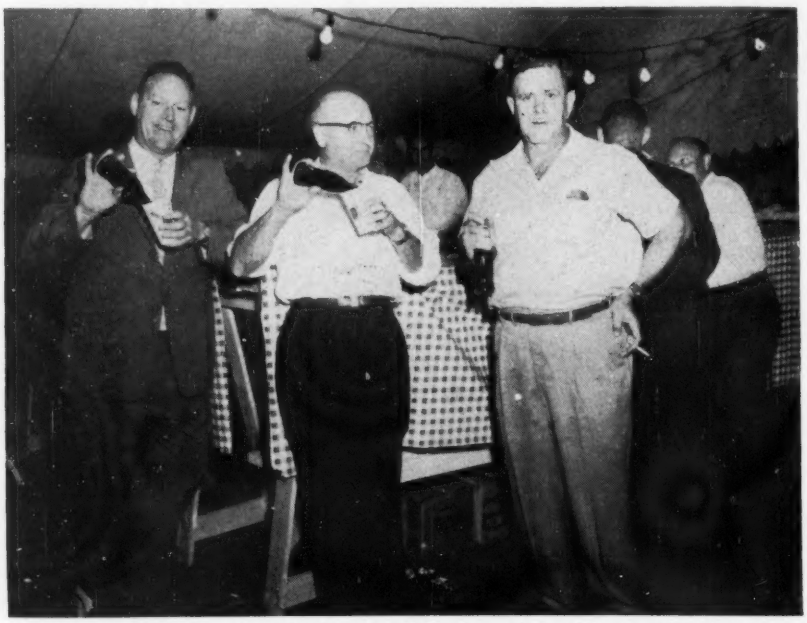
Having this year's outing at a country club, golfers could engage in their favorite sport and, at the same time, discuss some of their industry problems while relaxing in pleasant surroundings.

Limiting the number of guests, which had an effect of selectivity, in a sense holding members responsible for the action of their guest, no restriction was placed on drinks. Weather was ideal, the guests behaved and all-in-all it was a very nice outing.

Back: Pat Greene, George P. Greene Engineering Co.; Geo. A. Scott, Cleveland Brothers Equipment Co. Front: Joe Wales, Maximon Machine Co.; Seymour Wesberger, Elliott Coal Co.; C. T. Lytle, Maximon Machine Co.; Robert Lauver, C. E. Lauver & Sons.



Left: Ralph Kuhns, Teeter Coal Co.; O. T. Shingledecker, Punam & Greene and on the right Louis Honka, Secretary of the organization.

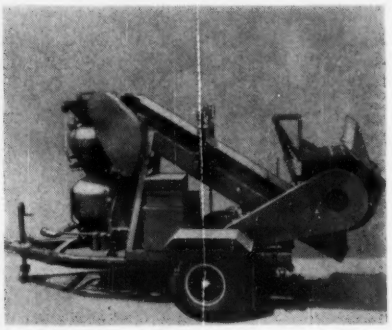


Left to right: Joseph A. Butler, Shaull Equipment Co.; Warton "Wardy" Wrye, Supt. for Robert Bailey; John Teeter, John Teeter Coal Co.

NEW UNDERGROUND GUNITING RIG CUTS NEED FOR BOLTING, TIMBERING

● Mine and tunnel crews can now rol a compact new guniting plant and shoot their own concrete into right into underground work areas place at the rate of six to twelve tons an hour. The rig makes short work of reinforcing drifts, shafts, stopes and pillars. It brings an inexpensive concreting process underground where it stabilizes the ground, reduces water and air slacking, and thus eliminates the need for the majority of the normal roof bolting and timbering.

Designated as Model C-3 UG, the unit was developed by Ridley and Company, Inc., 2217 Pontius Ave., Los Angeles 64. It is a scant 6 ft. high, with a base only 5 X 10 ft., and may be mounted on a mine car truck, skids or pneumatic tires. The entire rig may be knocked down to pass through shafts and narrow openings and re-assembled at the job site.



When removed from carrying trailer, this underground guniting rig measures only 6 ft. in height. It gives mine and tunnel crews their own portable facilities for mixing and shooting up to 12 tons of concrete reinforcing per hour.

Basic components include a paddle type mixer, an elevator, a Ridley concrete gun, and a 100-ft. guniting hose complete with nozzle.

All operating parts of the rig are driven by air motors powered by mine air lines. Supplies of cement and sand may be carried in an ore car coupled behind the rig. Twin spotlights, affording ample light for loading and gunning positions, are powered by a storage battery housed within the unit. A built-in intercom system keeps both operators in constant communication.

Due to its simplicity, the Ridley underground rig requires no previous guniting experience. An expert Ridley installer will train the user's own crew to operate and maintain the equipment without extra cost.

Left to right: Henry Kirby, Supt. Mine No. 3, North American Coal Corp., D. S. Cunningham, Gen. Supt. Valley Camp Coal Co., J. M. Hackett, Supt., Windsor Power House Coal Co., A. B. Rushton, Supt. Mine No. 3, Valley Camp Coal Co.

Left to right: T. C. Higgins, U. S. Bureau of Mines, Richard Graham, Gen. Supt. Ogleby Norton Co., Louis Jeslosky, Chairman 1960 Safety Directors of the Organization, Pat Winters, Supt. No. 1 Mines, North American Coal Corp.

Fall Meeting Of The Ohio Valley Branch Of The Mining Electro-Mechanical Maintenance Association

● Know it or not, men in the MEMMA have a most important role in the survival of the coal mining industry. Without proper maintenance of the kind of machinery it is going to have to maintain, the coal industry will not survive..

Recent anthropological excavations indicate man-ape creatures not yet able to walk on two legs learned to use tools — more than 500,000 years ago. It is believed the structure of modern man must be a result of change due to natural selection of species resulting from the use of tools. Selection is based on successful behaviour. In the man-ape the beginnings of the human way of life depended on learned skill in tool-using. Success of the newer ways of life, due to the use of tools increased pressure on selection thus accelerating progress.

Like natural selection worked to develop present man and his society, selection and use of the proper kind of machines to keep pace with competition in his industry is absolutely necessary for survival by the present coal mining man.

The Ohio Valley Branch held its first Fall Meeting at Wheeling, W. Va. Last year this branch had a membership of more than 200. This year it looks like membership will be increased by at least 30.

Mr. Adolph Pacifico, President of District No. 6 United Mine Workers

D. C. Jones, founder of the organization gave a talk on the various types of roof bolts.

Adolph Pacifico, Pres. Dist. 6, United Mine Workers, was master of ceremonies.

of America was master of ceremonies. He told the meeting that the UMW of A will not hinder progress in the technological development of the industry. Mr. D. C. Jones of the Penn State University and founder of the Association discussed the various kinds of roof bolts used in coal mines up to now.

Left; A. M. Horyak, Maint. Supt., Y & O Coal Co., and John Zitko Supt., Ireland Mine, Hanna Coal Co. and 1960 President of the organization.

Left to right: K. Merrick, Owner, Merrick Coal Co., Mike Duda, Supt., North American Coal Co., R. M. Wilson, Manufacturers representative, Dick Barr, U. S. Bureau of Mines.

● Appointment of Paul H. Henning as industrial relations director, The S. K. Wellman Company, Bedford, is announced by C. T. Cox, vice president.

Possessor of a master's degree in mechanical engineering from University of Michigan, Mr. Henning was formerly industrial relations manager of the Warner & Swasey Co. foundry division. He was affiliated with the latter firm for over 20 years.

PAUL H. HENNING
Paul H. Henning

The S. K. Wellman Co. is one of the nation's leading manufacturers of clutch plates, facings, brake blocks and brake linings. Its products, sold under the tradename "Velvetouch," are widely used in cars and trucks, construction equipment, military vehicles and industrial machinery.

● A new bulletin describing its complete line of cutter bits is announced by Austin Powder Company, Cleveland 13, Ohio.

Literature lists applications for 9 models in 2 series and discusses advantages of each. For copies, request form L-3136A, Austin Powder Company, Cleveland 13, Ohio.

Looking into the 80 foot deep pit at the George Bobo Coal Co. Note where blue shale was dumped to the right of the dragline, to be spread ahead of the stripping unit to keep it from sinking into the soft surface.

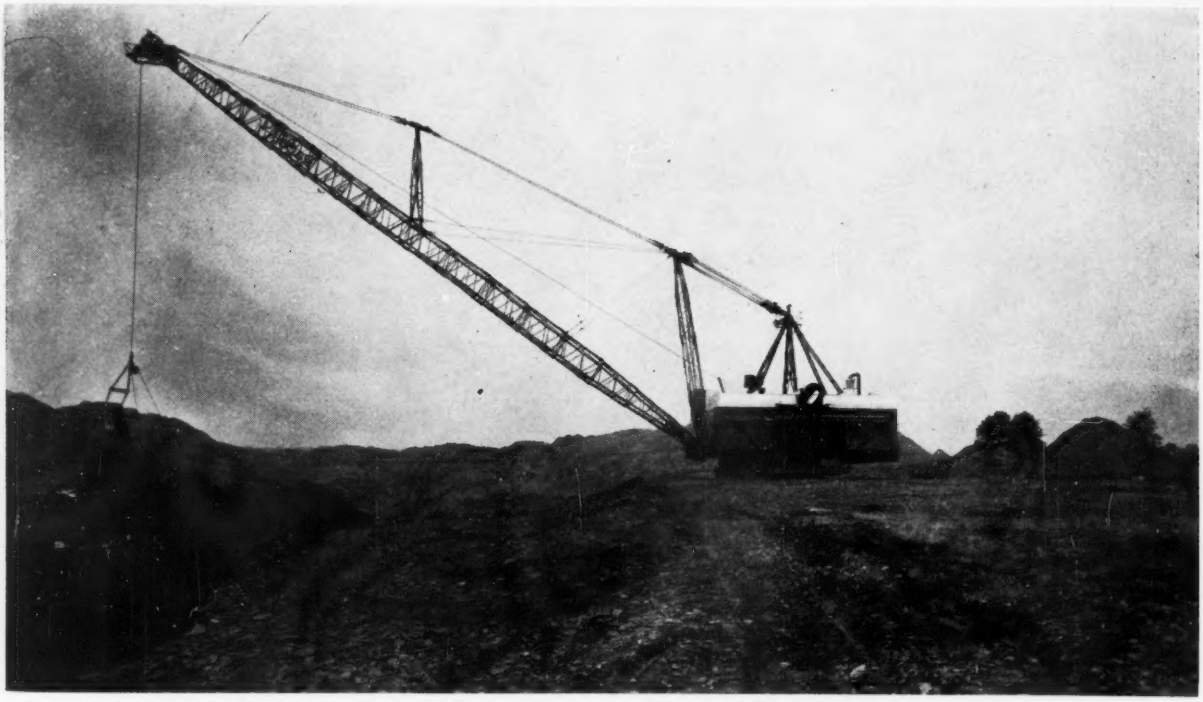
Stripping Mushy Overburden At The George Bobo Coal Co.

● Running rampant, many thousands of years ago, melting glaciers deposited a mixture of sand, mud and large boulders over the Brookville seam of coal lying in the vicinity of Jackson Center, Pa. Later washouts reduced this overburden on that coal to an average of about 70 feet. The weight of the overburden hardened the cover near the coal to a blue shale which is good enough for road building and is used to stabilize the surface for the large dragline. The area being flat, a box cut must be made to reach the coal.

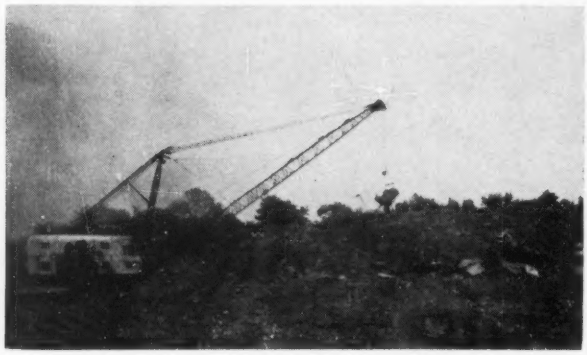
Overburden being soft and mushy in wet weather, highwall does not hold up, therefore, coal must be loaded out as fast as it is stripped.

At one of the pits a Model 728 Page dragline with 170 foot boom and 10 yard bucket was stripping 80 feet of cover to get 5 feet of coal. When the blue shale was reached some was spoiled alongside the dragline, so that it could be spread on the soft surface to prevent this large stripping unit from sinking into the soft earth. Coal was being loaded out right up to the stripping unit.

At another pit a Model 621 Page dragline with 150 foot boom and a 6 yard bucket was stripping 65 feet of cover. This dragline has operated 11 years without overhauling the Page engine. Two HD-21 tractors were working with the stripping unit.



The Model 728 Page Dragline stripping 80 foot overburden at the George Bobo Coal Co.



The Model 621 Page dragline which has been working 11 years without overhaul of the engine. The rock on spoil is part of large limerock boulders encountered in the soft overburden which have to be drilled and blasted to be moved.

Being a box cut, water must be pumped from the pit. This 6-inch Jaeger pump is working with coal loading shovel in the 80-ft. deep pit.

Lima Model 604 shovel loading out the coal as fast as it is stripped.

A-C Model HD-21 tractor spreading blue shale before the large dragline.

FOR FIRST CHOICE IN USED EQUIPMENT

wire collect

attached is an official Western Union Telegram fill out and send collect, today!

DOMESTIC SERVICE		$
Check the class of service desired; otherwise this message will be sent as a fast telegram		S
TELEGRAM		
DAY LETTER		E
NIGHT LETTER		

WESTERN UNION TELEGRAM

1206 (4-55)

W. P. MARSHALL, PRESIDENT

INTERNATIONAL SERVICE	
Check the class of service desired; otherwise the message will be sent at the full rate	
FULL RATE	
LETTER TELEGRAM	
SHORE-SHIP	

NO. WDS.-CL. OF SVC.	PD. OR COLL.	CASH NO.	CHARGE TO THE ACCOUNT OF	TIME FILED
	COLLECT			

Send the following message, subject to the terms on back hereof, which are hereby agreed to

_____
(Your Caterpillar Dealer)

_____
(Address)

_____
(City, State)

URGENT. GIVE ME PRICES, AVAILABILITY AND CONDITION OF USED TRACTORS, MOTOR GRADERS, SCRAPERS, TRAXCAVATORS, ENGINES.

_____
(Your Name)

_____
(Company Name)

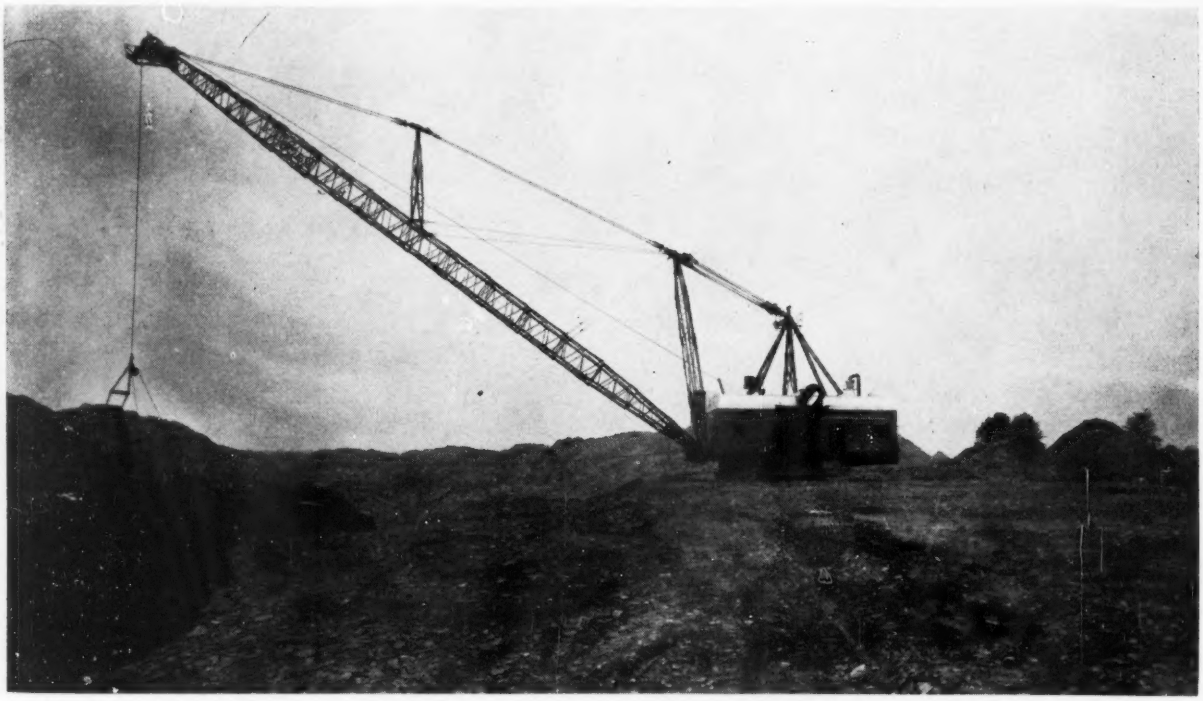
_____
(Address)

_____
(Phone Number)

(Please circle machines needed)
W. U. OPR: Transmit first line of text and encircled portion of second line

Send wire immediately or call your nearest Caterpillar Dealer.

See Page 4 for dealer's name and address.



The Model 728 Page Dragline stripping 80 foot overburden at the George Bobo Coal Co.

The Model 621 Page dragline which has been working 11 years without overhaul of the engine. The rock on spoil is part of large limerock boulders encountered in the soft overburden which have to be drilled and blasted to be moved.

Being a box cut, water must be pumped from the pit. This 6-inch Jaeger pump is working with coal loading shovel in the 80-ft. deep pit.

Lima Model 604 shovel loading out the coal as fast as it is stripped.

A-C Model HD-21 tractor spreading blue shale before the large dragline.

See Page 4 for dealer's name and address.

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TELEGRAM	
DAY LETTER	
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WESTER
TELE

W. P. MARS

TO ALL EQUIPMENT USERS:

BIG USED EQUIPMENT SALE NOW G

OUTSTANDING VALUES AND SAVING

EQUIPMENT IS GOING SO FAST YOU

SELECTION YOU NEED. ALL MAKES.

PRICED TO SELL. FINANCING TO M

FOR THE BEST BUYS, SEE US TODA

FOR USED EQUIPMENT LISTINGS.

N UNION
GRAM

1206 (4-55)

HALL, PRESIDENT

INTERNATIONAL SERVICE	
Check the class of service desired; otherwise the message will be sent at the full rate	
FULL RATE	
LETTER TELEGRAM	
SHORE-SHIP	

OING ON AT OUR HEADQUARTERS.

S. OUR SPECIALLY PRICED

'LL NEED TO ACT NOW TO GET THE

ALL MODELS. ALL CONDITIONS.

TCH YOUR NEEDS. DON'T WAIT.

Y. COME IN—CALL—WIRE—WRITE

YOUR CATERPILLAR DEALER

ONLY AT YOUR CATERPILLAR DEALER:

EQUIPMENT SO GOOD IT'S BACKED BY A BOND UP TO $10,000. WE ASSURE YOU OF SATISFACTORY MACHINE PERFORMANCE AND PUT IT IN WRITING. BONDED BUY MACHINES ARE CAREFULLY CHECKED OVER AND RECONDITIONED, WHERE NECESSARY, USING GENUINE PARTS AND FACTORY-APPROVED METHODS. OTHER WARRANTIES AVAILABLE TO MATCH YOUR NEEDS.

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Look to the Dealer behind the product.

CATERPILLAR
USED EQUIPMENT HEADQUARTERS

Be safe, be sure with used equipment from your Cat Dealer.

BECKWITH MACHINERY COMPANY

6550 Hamilton Avenue, Pittsburgh, Pa.
Old Town Road, Clearfield, Pa.
361-369 Congress St., Bradford, Pa.
1356 E. 12th St., Erie, Pa.
Route 219 North, Somerset, Pa.
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OHIO MACHINERY CO.

6606 Schaaf Road, Cleveland, Ohio
930 Kinnear Road, Columbus, Ohio
2807 Reynolds Road, Toledo, Ohio
U.S. Route 250, Cadiz, Ohio
4000 Lake Park Road, Youngstown, Ohio

WALKER MACHINERY CO.

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CM-11

Form No. DU-10604C

Printed in U.S.A.

Unique Swedish Friction Hoist For Scottish Mine

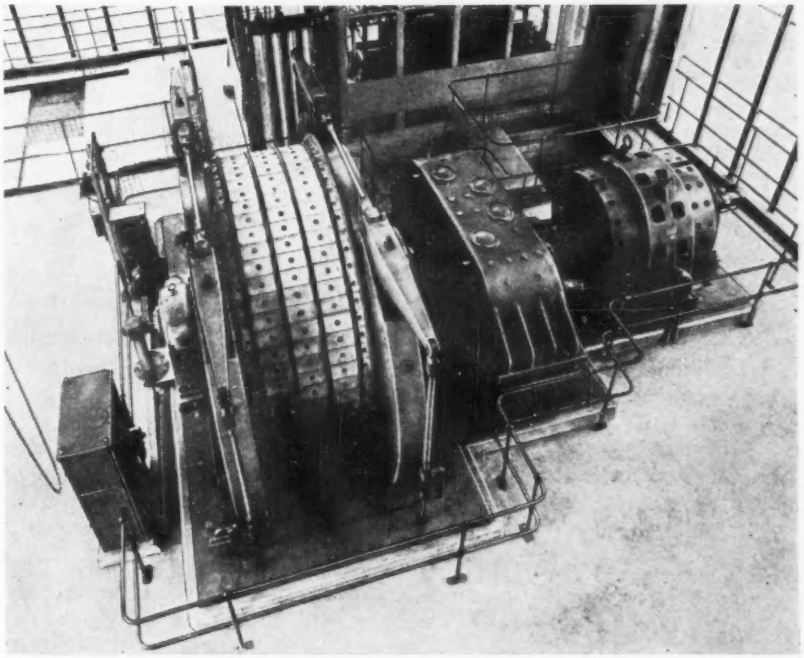
By Holger Lundberg

● The first push-button-operated friction hoist in the world working with induction-motor drive and dynamic braking has been supplied by the Swedish General Electric Company (ASEA), in Vasteras, to the National Coal Board of Great Britain. The hoist has been installed in a 1,850 feet deep shaft at the Seafield Colliery, East Fife, Scotland, and forms a part of an order for four multi-rope hoists for various British Collieries, reports **ASEA Journal.**

Three of the new units, all delivered to Scotland, are driven by three-phase induction motors. Due to the working conditions, induction-motor drive could only be adopted when combining it with d.c. braking. The installation is designed for both manual and push-button operation. The latter operating system is used for all transport of material, whereas service hoisting is controlled by an engineman, owing to the present British Mine Safety Regulations in force.

Usually the speed in induction-motor mine hoists is regulated by the service brake in combination with the reconnection in steps of the secondary resistor of the motor. In the case of high speeds and large loads the energy which has to be absorbed by the brakes leads to excessive heating. Should it be desired to employ induction-motor drive also for this type of service, retardation with the service brake must be replaced by electrical braking, the **Journal** writes.

The hoist cage at Seafield has a weight of 12.5 tons, the weight of the two mine cars is three tons, and the net load amounts to 7.5 tons. The hoisting speed is 30 feet per second at 750 r.p.m., 900 h.p., and 6.6 kV. With the d.c. braking system the hoist motor is discontinued from the network and is connected instead to a small d. c. generator.



The pushbutton-operated friction hoist delivered by Swedish ASEA to the Seafield Colliery, Scotland. A 900 h.p. induction motor drives the four-rope hoist via a spring-mounted precision bear.

ASEA reports having succeeded in developing a combined system with the following features: Continuous speed regulation right down to creep speed, irrespective of load, as well as constant retardation. Extra safety is obtained thanks to the two retardation system working independently of each other.

During manual operation, the mine hoist is remotely operated from a control desk set up on the ground level by means of controller lever and a braking lever. The latter actuates two reference potentiometers for the service brake and the d.c. braking system, which are electrically interconnected in such a way that each position on the brake lever corresponds to a certain fixed speed, irrespective of the size of the load.

When the hoist is being operated by push-buttons, the reference potentiometers controlled by the brake lever are replaced by two other potentiometers, which are driven direct from the hoist shaft during the retardation period. In this way the reference voltage, and consequently also the speed of the hoist, will be directly dependent on the position of the cage in the shaft, and a constant retardation is obtained.

When large loads are being hoisted, d.c. braking is often not required. A current relay, which senses the motor current during the period of full speed, decides whether the motor can remain connected to the network during the retardation. During the period of full speed a power-direction relay also checks whether the hoist is driving, or being driven by, the load.

New Truck Engine Announced

The trucking industry gains another engine manufacturer this month with the introduction by Caterpillar of its 1673 Diesel Truck Engine.

With thirty years of experience in the diesel engine field, Caterpillar is a familar name to engine power users. In the 1673, truck owners are offered an engine of 220 horsepower at 2200 RPM. It is a six cylinder turbocharged and aftercooled power plant of 4.5 inch bore and 5.5 inch stroke.

An estimated 85% to 90% of diesel trucks on the road are in the horsepower class to use the 1673. These trucks have gross vehicle weights of 26,000 pounds or more, or gross combined weights of 50,000 to 75,000 pounds.

In the 1673, Caterpillar is offering the trucking industry a trouble free fuel system, compact four-cycle design and mechanical excellence, all features important to economical operation and dependable operation and dependable performance.

In the 1900 to 2100 RPM range, the 1673 uses only .398 pounds of fuel per brake horsepower hour, a very economical rate in truck engines.

TROUBLE-FREE FUEL SYSTEM

New to many truckers will be the Cat fuel system, which has always been a popular feature with customers of Caterpillar Engines. J. G. Edwards, Chief Engineer of Caterpillar's Engine Division, explained:

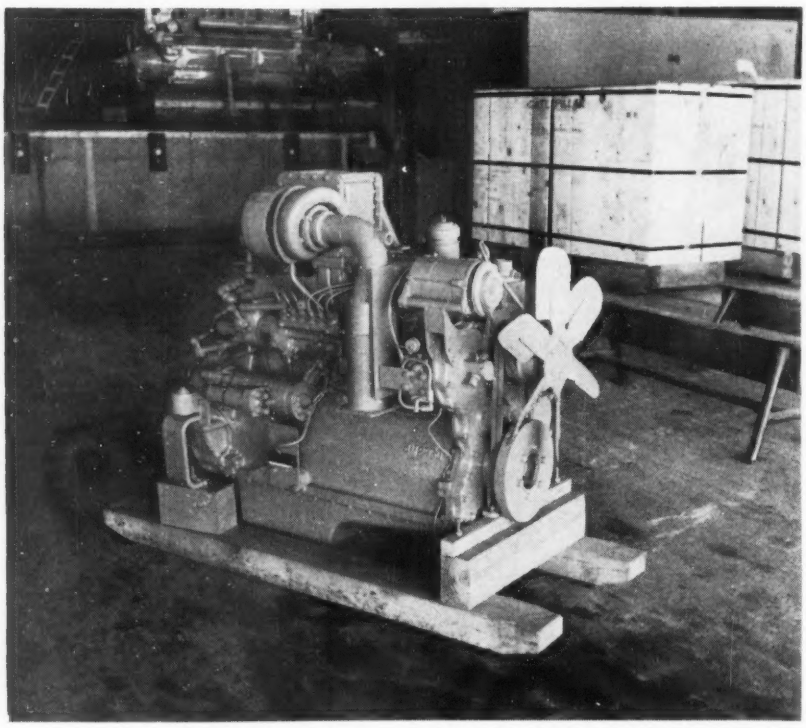
"The precombustion chamber design of Caterpillar Engines is the heart of their economical operation and maintenance. In the precombustion chamber, part of the injected fuel is ignited—ramming the main charge into the cylinder under high turbulence to mix fuel and air, assuring full burning at all load conditions including idling. Such complete burning results in clean exhaust, a smooth power stroke and constant power mile after mile. The chamber makes it possible for Caterpillar to ultilize a fuel injector with a large single oriface. This eliminates fouling problems in the oriface and greatly reduces the amount of maintenance usually required on truck diesels.

"The large single hole oriface injectors in conjunction with the precombustion chamber permit the use of less expensive, heavier fuels. These economy fuels have higher energy values and produce more work per gallon."

The trucker has never before had a fuel system that did not require periodic adjustments. Direct injection fuel systems have to be cleaned as often as 20,000 to 25,000 miles.

"There is no such need in a Caterpillar "Constant-Power" fuel system. With the 1673, the trucker will save on maintenance bills, especially in middle and later engine life. He will get better performance, more power on grades, fewer and lower repair bills . . . no need to bring power back in middle engine life," Edwards said.

Complete combustion results in significantly less smoke and odor during gear shifting and on steep grades, and no smoke at cruising speeds. This elimination of smoke means no wasted fuel. A second benefit from clean exhaust is greater public good will. Smoke and odor can lead to restrictive legislation.



Caterpillar's entry in the truck powering field, the 1673 Diesel Engine, develops 220 horsepower at 2200 RPM. It is a six cylinder, 4.5 inch bore x 5.5 inch stroke power plant. It weighs 2,070 pounds.

COMPACT DESIGN

The compact Cat 1673 Diesel Engine fits almost every make truck

in its horsepower range. It can be placed in the White Model 3000, the International Model R-210, the Mack Model B-61, the Diamond T Model 921, the Kenworth Model 848 and many other trucks. The compact design incorporates all the longevity characteristics built into the hundreds of thousands of Cat Diesels at work throughout the world. Here are the dimensions of the 1673 and how they compare with another common make truck engine of like horsepower.

	Cat 1673	Competitor
Horsepower	220	220
Displacement, cu. in.	525	743
Cylinders	6	6
Length, inches	52.8	61.2
Width, inches	29.8	30.6
Height, inches	48.5	48.8
Net dry weight, lb.	2070	2475
Pounds per horsepower	9.4	11.25

MECHANICAL EXCELLENCE

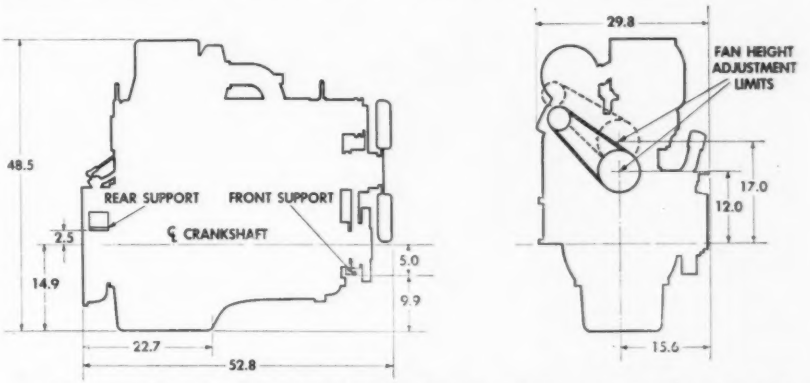
"The 1673 is similar to the engine used in today's D6 Tractor, No. 14 Motor Grader, No. 12 Motor Grader, No. 977 Traxcavator and No. 966 Traxcavator. Refinements through the years have brought these high quality engines into the weight and speed range suited to highway trucks," Edwards said.

Caterpillar was a successful pioneer of turbocharging in the earthmoving engine field, and now carries this principle into truck engines. Turbocharging and aftercooling have been built up to a high standard of excellence through Caterpillar's thirty years of engine experience.

"Today, tens of thousands of Caterpillar Turbocharged Engines are operating efficiently in the field. Nine out of ten diesel engines manufactured at Caterpillar offer turbocharging as standard equipment," Edwards said.

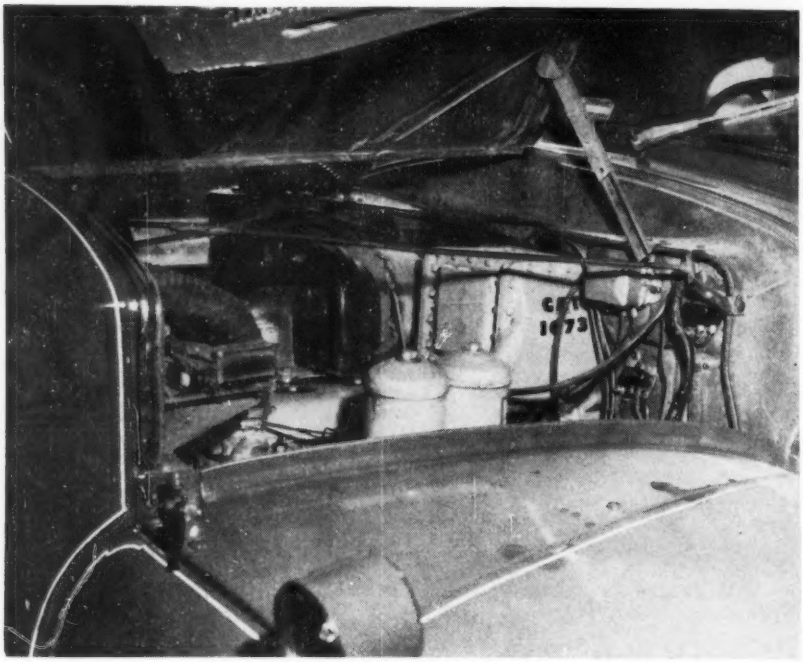
Turbocharging and aftercooling provide a greater quantity of oxygen for combustion in the cylinders. The turbocharger compresses air and the aftercooler increases its density still further by cooling it. Air leaves the turbocharger at 330° F., and the aftercooler at 200° F. The aftercooler increases power by 20% without adding to peak pressures, and actually reduces peak temperatures. Most truckers know that cooler valves give longer service life. Turbocharging and aftercooling mean more power with less engine wear—longer engine life.

Edwards said that the 1673 has been designed to handle pressures in cylinders and on bearings far in excess from those resulting from 220 horsepower operation

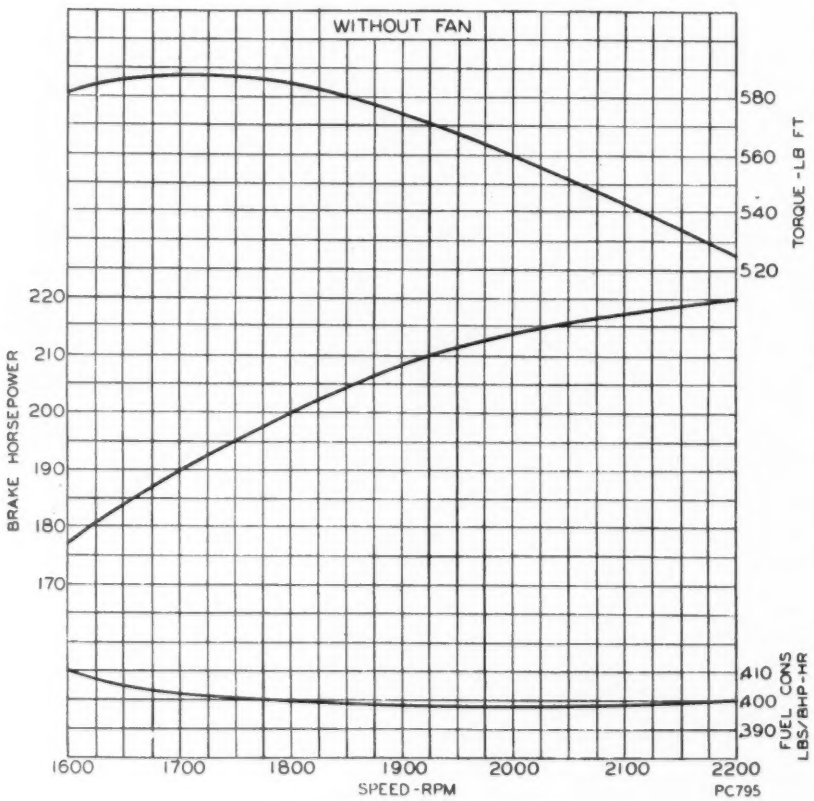


The compact Cat 1673 Diesel Engine fits into almost any make truck in its horsepower range. It can be placed in the White Model 3000, the International Model R-210, the Mack Model B-61 the Diamond T Model 921, the Kenworth Model 848 and many other trucks.

The Greco excavating company of Rosemont, Illinois, used a Caterpillar 1673 Diesel Engine to repower this Mack Model B-63 Truck. The truck averages 48 to 60 hours a week, hauling excavating material on Chicago area construction jobs. Ralph T. Dahlen, Greco shop superintendent, said "We found Cat Engines give us satisfactory service in all of our excavation equipment. They seem to stay in there and produce when other makes are down for repairs. That's what prompted us to select Cat when it came time to repower this truck."



A look under the hood of this Mack B-63 reveals a Cat 1673 Diesel Truck Engine. The truck belongs to the Greco excavating company of Rosemont, Illinois, whose decision to use Cat power was based upon experience with that firm's excavating machinery.



PERFORMANCE CURVE — 1673

Caterpillar's dependable four-cycle design means better breathing because valves are open longer than valves in two-cycle engines. This design also allows a long, effective power stroke and high combustion efficiency. The aluminum alloy bearings were designed and developed by Caterpillar and have high load-carrying ability. They are corrosion resistant, important because of the corrosive action of acids usually found in engine crankcases after short operation.

A tough, wear-resistant seat for the critical top ring of the aluminum piston is provided by an integrally-cast iron insert. Piston sides are elliptically ground, the ideal shape to match the cylinder walls during operating conditions.

Valve rotators are another money-saving feature in Caterpillar Engines. The rotator turns the valve a few degrees each time it lifts off the seat. They minimize valve sticking and assure positive seating.

Caterpillar's full-length water-cooled cylinder liners prevent cracking of liners and dissipate heat for longer piston life. The pistons themselves are oil-cooled by a constant oil spray on the under side of the piston. The high quality forged crankshaft is especially formulated from high carbon steel, induction hardened and shot peened for additional surface hardness and stress relief. Edwards said that many more features have been built into these truck engines to provide truck owners with exceptional life and minimum maintenance.

In accordance with its strict program of proving products, Caterpillar has thoroughly tested truck engines in the research laboratory, on high load endurance runs and for hundreds of thousands of miles on the highway.

Fred Jacobs said: "We are now offering the 1673 to truckers through Caterpillar Dealers and truck manufacturers. Dealers in the United States and Canada are marketing the engine during 1960. Our plans also include other sizes of truck power units, both larger and smaller than the 1673."

Simplified Lubrication Program Results in Exceptional Long Life of Face Equipment

Protection of face equipment at Amherst Coal Company's Paragon Slope Mine is simplified by the use of one lubricant and a hydraulic oil, thus avoiding the possibility of error in application. A miner is shown applying Gulf Mining Lubricant HD to a coal transfer buggy.

● A simplified lubrication program combined with a rapid method of checking on maintenance has resulted in exceptional long life of face equipment at a West Virginia coal mine.

The program was instituted at Amherst Coal Company's Paragon Slope Mine, at Slagle, W. Va., after it became evident that using five different lubricants for the mine equipment, each for a specific need, opened the way for errors in application.

At that time, Paragon was using three lubricating oils and two greases. Because of the obvious exigencies of mining, application errors were made. In one instance, cylinder oil was placed in the hydraulic system, and at another time, semi-fluid grease was mixed in with hydraulic oil.

To remedy the situation, Gulf engineers were called in. After a lubrication study, Gulf engineers recommended two oils for all of the face equipment—Gulf Mining Lubricant B for all lubrication purposes, and a Gulf hydraulic oil for hydraulic applications.

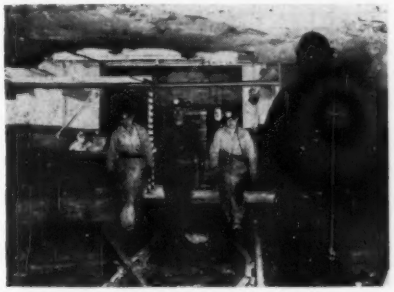
Later, new Gulf Mining Lubricant HD, a specially fortified, multipurpose lubricant developed particularly for continuous running machines, replaced Gulf Mining Lubricant B.

The success of this program is evident from two things: (1) the long life of the equipment, and (2) the fact that it soon was put into effect in three other Amherst mines.

Aiding in the lubrication program at the Paragon Slope Mine is a system that makes possible a quick visual check on the maintenance of each piece of equipment.

The electrician in each section of the mine is assigned to lubricate certain pieces of equipment on his shift. The electricians on their daily reports to the mine office show whether the equipment has been lubricated and also if any repairs have been made.

The mine clerk has a large wall board on which each piece of equipment is identified. When the electricians' reports come in, he places a colored square of cardboard opposite the piece of equipment to indicate that it has either been lubricated or repaired or both. If for some reason, a piece of equipment was not lubricated, a white square is put up. Thus, at a glance, it is possible to check on the lubricating schedule of all the equipment. In addition, the chief electrician goes to a mine section daily and examines the equipment to see that it has been properly lubricated and is in good working order.



The exceptional long life of face equipment at Amherst Coal Company's Paragon Slope Mine has been achieved by a thorough maintenance program which includes simplified lubrication. Here, shown leaving the mine's new underground repair shop for a check on the lubrication are: (left to right) J. P. Poling, Gulf Sales Engineer; Rethel Edwards, Mine Manager, and F. C. Robert, Gulf Product Application Engineer.

The Paragon Slope Mine uses conventional mobile equipment and continuous miners. The vein is around 4½ feet high with a firm shale roof and floor. A total of 201 men work in the mine on two shifts and produce about 4,000 tons of coal a day.

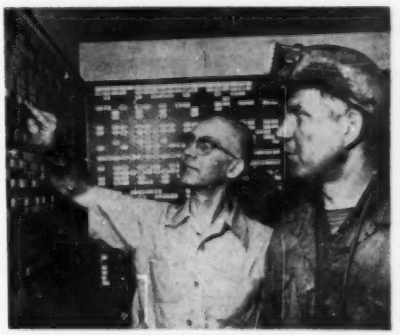
In a typical section, the equipment includes one cutting machine, two loaders and three shuttle cars. A 12-man crew, plus a foreman, is able to mine 500 to 600 tons per shift.

The breaks are on 80-foot centers with the openings about 22 to 24 feet wide. The belt conveyor is moved up every two breaks. Continuous miners are used in some sections of the mine.

A new complete underground repair shop was completed recently at the Paragon mine about 265 feet underground and about 1,000 feet from the portal.

Aubra Chaney, Division Superintendent, said the lubrication program has resulted in substantially lower maintenance costs, and that this has been particularly noticeable for the cutting machines, where the universal head joints are the most critical lubrication point.

"We have found that the use of one basic lubricant eliminates the chance for error and also speeds up lubrication because it is possible to use one gun for all the equipment," Mr. Chaney noted.



A quick, visual check can be made on the maintenance of equipment at the Amherst Coal Company's Paragon Slope Mine by means of this wall board on which different colored and lettered squares are used to indicate when greasing and/or repairs are completed. White squares are used to show when a lubrication has been missed. Checking over the board with the mine clerk (left), is Rethel Edwards, Mine Manager. Maintenance has been greatly simplified at the mine by the use of one basic lubricant, Gulf Mining Lubricant HD, for the face equipment.

● The world's biggest bubble gun capable of producing an ocean of foam within a matter of minutes, has been introduced by a Greensburg, Pennsylvania firm for use primarily in fighting mine fires.

This equipment is capable of generating 12,000 cubic feet of foam per minute and driving it 2,000 feet from the mouth of the machine. Produced by the Safety Development Corporation, this Hi-Ex system consists of a portable foam generator equipped with pleated nylon netting, nozzles and other accessories, and a proportioning pump assembly to mix a special foaming agent with water.

An ocean of bubbles flows through a simulated mine entry almost instantly after a Hi-Ex generator, produced by Safety Development Corporation of Greensburg, Pennsylvania goes into action. The bubbles, generated at a 1000-to-1 expansion ratio, compared to regular fire fighting foam with its 10-to-1 ratio, acts as a plug to fill every air space and starve the flames for oxygen.

While designed primarily for use in mine fire fighting, the equipment may be adapted, according to Robert W. Barnes, president of the Greensburg firm, for fire protection in warehouses and industrial plants, and for the formation of a foam cover in citrus groves, fruit orchards and and vegetable farms to prevent frost damage.

Effectiveness of Hi-Ex equipment in fighting mine fires was demonstrated recently at a blaze which seriously threatened a large mine in southwestern Pennsylvania.

With the blaze raging for more than nine hours, the equipment was placed in operation to prevent the flames from spreading to other areas, and to reduce the area which was burning. Analyses made by personnel of the U. S. Bureau of Mines show that the foam-flood reduced the combustible content of air in the mine substantially, eliminating the possibility of explosion. The foam also reduced sealing to a small area of the facility, rather than the entire mine or a substantial portion of the mine which in 1959 had produced more than 1,000,000 tons of coal.

Principle of this giant "bubble-maker," Barnes explained, is the rapid generation of high expansion foam having 1,000 times the volume of the liquid, in contrast to conventional fire fighting foam with its 10-to-1 expansion ratio.

This bubbling mass, when driven into the fire area, acts as a plug filling every air space and in so doing starves the flames for oxygen. Conversion of the bubbles to water and then to steam absorbs much of the heat of the blaze, creating a cooling action, preventing re-combustion, and eliminating the hazard of gaseous explosions.

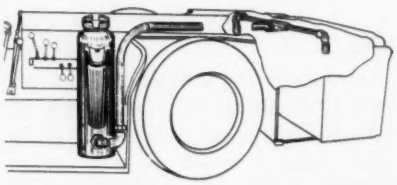
Warehouses and industrial plants may be flooded automatically with foam, Barnes said, to extinquish a fire without the chance of heavy damages by water; and plant personnel trapped in a fire area can escape injury by entering the foam and breathing the air contained in the millions of bubbles.

Studies are being made, Barnes said, on the possible adapting of this equipment for use in generating a foam cover over perishable crops when frost, which hangs close to the ground, develops. The foam, he expained, would serve as an insulation against the cold nights, and would be dissipated into moisture when hit by the right rays of the sun.

NEW FIRE SYSTEM BUILT INTO TRACKLESS COAL CUTTERS

● The Semet-Solvay Division of Allied Chemical Corporation has developed a new system of fire protection for its coal cutting machines in an effort to provide greater fire safety for mine personnel as well as reduce possible fire damage to the machines. This new system will supplement Semet-Solvay's other fire protection facilities in its mines.

The main fire hazard of the cutting machine is the cable reel section, which may be ignited if the trailing cable developes a defect in the insulation. The new system, developed in cooperation with engineers of the Ansul Chemical Company, Marinette, Wisconsin, pioneer producers of dry chemical fire



A close-up of the Ansul 30-pound dry chemical piped system installed in the cable reel sections of soft coal loading machines operated by the Semet-Solvay Division of Allied Chemical Corporation. The piped system is designed to put out fires which sometimes start when the two-conductor cable develops cracks after rough usuage, shorts out and ignites the cable.

equipment, involves the use of a 30-pound automatic piped system built into the trackless coal cutter and capable of expelling 30 pounds of dry chemical into the unit's cable reel section as soon as fire breaks out. In all, Semet-Solvay has about 30 such machines in its five mines at Tralee and Harewood, W. Va.

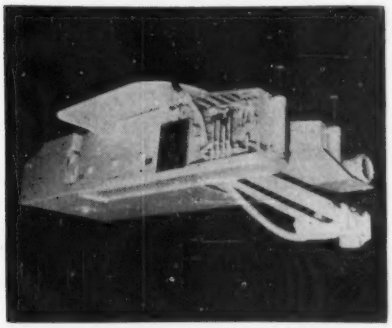
With the new Ansul PS-30 system, the dry chemical extinguishing agent is expelled through pipes to the manifold surrounding the back shield of the reel. The manifold is equipped with three nozzles spaced around the shield. When the operator discovers a fire in the reel, he can push a valve which results in the flooding of the reel compartment with dry chemical.

The first such Ansul PS-30 unit was installed about a year ago. Today, as each machine is taken out of service for overhaul, Semet-Solvay engineers are installing the new fire extinguishing system, until all units are so equiped.

● One-man operation and a high degree of maneuverability feature the new Model LRB Roof Bolting Machine developed by Long-Airdox Co., Oak Hill, W. Va.

Designed with variable drilling speed for different types of material and with a 42-in. lift, the new machine can drill the roof and set a bolt in 65 seconds.

Its 40-in. width and ability to turn in its own length of 108-in. facilitates maneuvering in narrow runways and close timbering. Also, the machine permits roof bolting in the same working face where other functions, such as cutting and loading, are being performed.



Model LRB Roof Bolting Machine, Long-Airdox Company, Oak Hill, W. Va.

The machine's 27-in. overall height permits it application in thinnest coal seams.

The LRB accelerates the roof bolting procedure because of its fast drilling and ability to reposition from hole to hole in 25 seconds. The machine trams at 140 fpm.

Already operating in mines in West Virginia, Kentucky, Indiana, and Pennsylvania, this roof bolter can also be furnished with a hydraulic face drill permitting roof bolting and face drilling to be performed simultaneously.

Additional details on Model LRB are available from Long-Airdox Co., P. O. Box 331, Oak Hill, W. Va.

● The Page Engineering Company announced the release of a new brochure DH-360 covering the all new Page DUAL-HITCH AUTOMATIC Dragline Bucket.

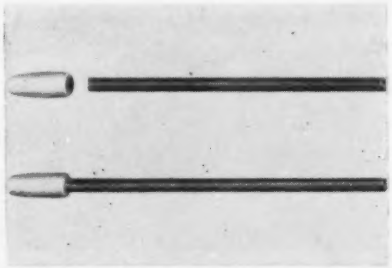
This is the latest, most outstanding development in precision dragline tools since the origination of the dragline method of digging.

The DUAL-HITCH can be easily adjusted in a matter of minutes to dig at any desired depth above or below the fairlead with the same degree of digging efficiency and capacity. It is specifically designed to meet the exact digging requirements of the job application.

This attractive, two-color, six-page, brochure shows the DUAL-HITCH in action and illustrates the many outstanding features that are built into this one all-purpose bucket.

For further information, write to the Page Engineering Company, Clearing Post Office, Chicago 38, Illinois.

● A new protective enclosure for preserving the effectiveness of detonating fuse by preventing water absorption in wet blast holes is announced by Austin Powder Company, Cleveland 13, Ohio.



Austin Enclosure and detonating fuse before connection (top). Austin Enclosure and detonating fuse after connection (bottom).

Known as Austin Plastic Fuse Enclosure, it is recommended for sealing all fuse ends in bottom or top of wet holes. Its use is particularly important in bottom charges where water problems may affect final results.

Watertight application is said to consist simply of pushing enclosure over fuse end. Enclosures are supplied 200 to a bag.

For additional information, request form L-3244A, Austin Powder Company, 458 Rockefeller Bldg., Cleveland 13, Ohio.

The city sleeps. But, it's business as usual in the Highway parts and service departments.

Regular service hours are 8 a. m. to 3 a. m. But, for emergency work, Highway is open 'round-the-clock.

Fast service . . . expertly and economically handled by 87 factory-trained mechanics — this is just one of many reasons it pays you to rely on Highway for all your equipment needs. A-2256A

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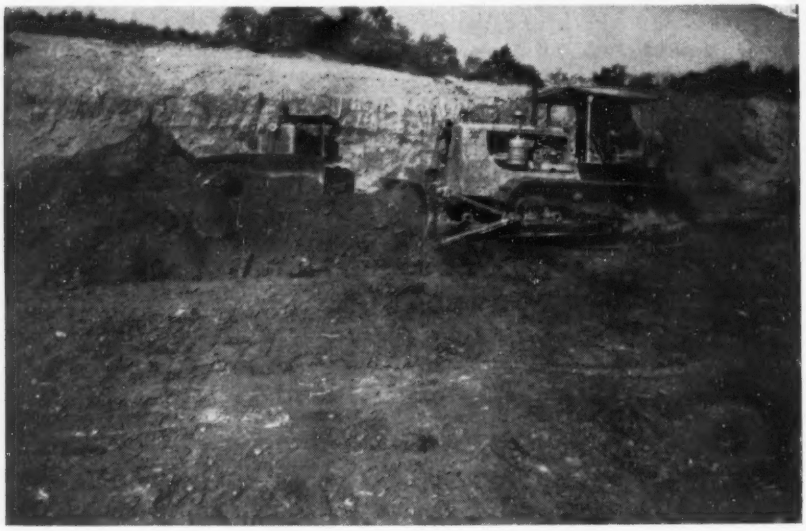
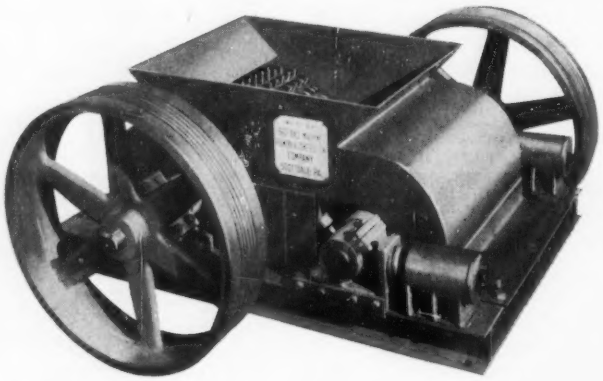


SCOTTDALE DOUBLE ROLL CRUSHERS



ECONOMICAL - *takes less power*

EFFICIENT - *more uniform product*

The powerful chilled cast iron double rolls of the 63 special are covered with hundreds of steel teeth which speedily bite, chew and shred the coal to any wanted size from ¾" to 8" . . . fines are held to a low minimum.

This 2 motor drive machine has gears but is equipped with 2 easily maintained grooved flywheels. One welded steel hopper is mounted on a 46" x 65" welded steel base. Weighing only 4800 pounds and powered with 2—10 H. P. motors the crusher has a top speed of 150 RPM's with a capacity of 60 to 250 tons per hour. Comes with bronze bushed journal bearings.

Send for literature.

SCOTTDALE MACHINE, FOUNDRY & CONSTRUCTION CO.

DEPT. CM BOX 51 SCOTTDALE, PA.

GUYAN MACHINERY CO., Logan, W. Va. stock SCOTTDALE CRUSHERS

● Merle L. Sunderland has been appointed new Branch Manager for Beckwith Machinery Company's Clearfields, Pennsylvania operation, it was announced recently in Pittsburgh by William H. Dickey, Vice President and General Manager.

Mr. Sunderland will assume the duties previously handled by Walter W. Coldren. Mr. Coldren has been named to the newly-created position of Used Equipment Manager for the entire Beckwith organization covering western Pennsylvania and parts of northern West Virginia and Maryland.

Mr. Sunderland originally joined Beckwith Machinery Company in 1948. He was previously Parts Manager and most recently line salesman for the heavy earthmoving equipment dealer. Mr. Kenneth A. Braniff, Clearfield Office Manager, will replace Mr. Sunderland as Sales Representative in Jefferson, Indiana, northern Cambria, and northern Blair Counties.

WALTER W. COLDREN

Mr. Coldren will headquarter in Pittsburgh, Pennsylvania. He originally joined Beckwith Machinery Company in 1941, directed the parts depot at Belmont, Ohio, and later on became general line salesman in the Ohio territory. He was named Clearfield Branch Manager in 1952.

Beckwith Machinery Company sells and services Caterpillar tractors, scrapers, motor graders, diesel engines; Bucyrus-Erie shovels, cranes, and draglines as well as other heavy equipment for the coal stripping and contracting industries.

HEAVY EXCAVATION EQUIPMENT
Draglines, Shovels, Cranes, Drills, Trucks

15-W Bucyrus Erie Elec. Drag, 215', 12 yd.
450-W Bucyrus Erie Diesel Drag, 165' with extra 10, 12, 13 and 14 yd. buckets.
9-W Bucyrus Erie Elec. Drag, 165', 10 yd.
9-W Bucyrus Erie Diesel Drag, 165', 12 yd.
7-W Bucyrus Erie Diesel Drag, 140', 7 yd.
7400 Marion Diesel Drag, 175', 13 yd.
71-B B.E. Crane with 160' boom
625 Page Diesel Drag, 150', 10 yd.
1855 P & H Diesel Drag, 130', 10 yd.
621-S Page Diesel Drag, 125', 7 yd.
200-W Bucyrus-Erie Diesel Drag, 125', 6 yd.
2400 Lima Elec. Drag, 130', 6 yd.
2400 Lima Diesel Drag, 130', 6 yd.
4500 Manitowoc Drag, 120', 5 yd.
120-B Bucyrus-Erie Elec. Drag, 115', 5 yd.
111-M Marion Drag, 100', 4 yd.
1055 P & H Diesel Drag, 80', 4 yd.
1601 Lima, 4 yd., Shovel/Drag
3900, 3500 & 3000 Manitowoc Cranes
5560 Marion 26 yd. Elec. Shovel
190-B B. E. 8 yd. Elec. Shovel
151-M Marion 7 yd. Elec. Shovel
1600 P & H 6 Yd. Elec. Shovels
170-B B.E. 6 yd. Elec. Shovel
4161 Marion 6 yd. Elec. Shovel
2400 Lima 6 yd. Std. & H. L. Shovels
120-B Bucyrus-Erie 4 yd. Elec. Shovel
4500 Manitowoc 5 yd. H. L. Shovel
1055 P & H 3 yd. H. L. Shovel
1201 Lima 3½ Yd. Standard Shovel
111-M Marion Standard & H. L. Shovels
3500 Manitowoc Standard & H. L. Shovels
54-B Bucyrus-Erie Standard & H. L. Shovels
Model T-650 REICHdrill, Truck Mounted Rotary and Down-The-Hole
Ingersoll-Rand Truck Mtd. & Crawler Mtd. Drillmasters
Keystone No. 50 Truck Mtd. Stardrill
McCarthy & Compton Coal Auger Drills
Euclid Trucks, Dozers, Attachments, etc.

Frank Swabb Equipment Co., Inc.
313 Hazleton Nat'l Bank Bldg.
Hazleton, Pa. GLadstone 5-3658

FOR SALE

- Used LeRoi 365 CFM portable diesel driven Air Compressor—4 pneumatic tires, powered by model UD-18-A International engine. $6,000. FOB Glenshaw, Pa.
- Concrete Saw Eveready PDK-15. $1800.
- P & H used model 1055 LC dragline, 80 ft. boom, 4 yard Page bucket. New AC turbo-charge diesel, new Clark torque converter. Also equipped with light plant. Good condition. $40,000 FOB Somerset, Pa.
- Used Link-Belt K-595 dragline, 80 Ft. boom, 2½ yard Page bucket. Powered by Caterpillar D-17,000 Diesel. Swing shaft just rebuilt $41,000 FOB Wellsboro, Pa.
- Hough H-L used ¾ yard, rebuilt I-H model U-9 gas engine. Dual 2-wheel drive. Good for stockpiling. $3,500.
- Slightly used demonstrator PM model 440 front end loader, powered by GM 471 Diesel, 4 wheel drive Allison torque converter and 4-20; 5 x 25 tires. $26,000 FOB Glenshaw, Pa.
- Ansco Simplex Teeth. The only reversible tooth in the industry. Guaranteed replacement against breakage.

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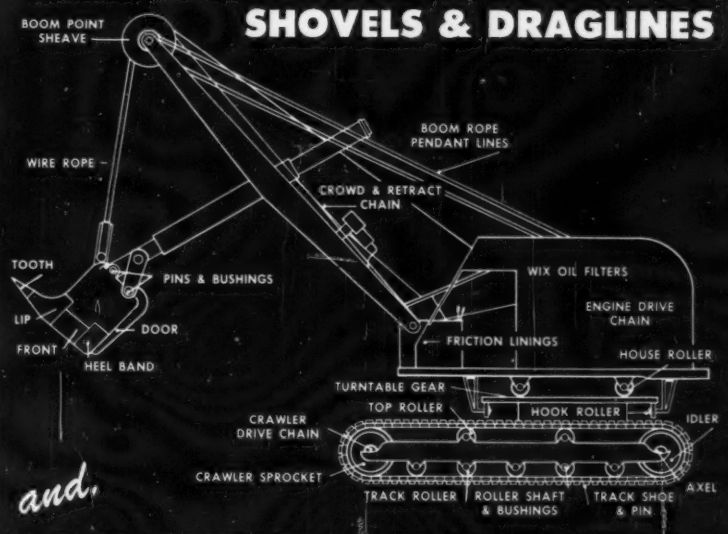

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Drills holes faster — Will not snap off shank or chip points — Outlasts four or five ordinary augers.

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JOY EQUIPMENT—REBUILT

6—Joy 14BU 9AE—26"Hi—New 1958.
3—Joy 14BU Loaders, low pedestal, 7AE, 1956 & 57.
6—Joy 14BU Loaders, medium pedestal, 7RBE.
1—Joy 14BU 7CE High pedestal loader.
4—Joy 14BU 3PE Loaders.
2—Joy 12BU Joy Loaders complete with Piggybacks.
2—Joy 12BU Loaders, 9E latest type 250 V. DC.
5—12BU Loaders, 220/440 Volt AC.
1—Joy 20BU Loader, latest type.
4—Joy 11BU Loaders, latest type.
1—Joy 8BU Loader, 34" overall height.
2—Joy 8BU Loaders, 220 V. DC.
1—Joy curved Bar Head for 14BU, complete.
6—Reliance 24-J Motors, 7½ H.P.
4—Reliance 38-J Motors, 10 H.P.
20—9-J Motors, 4 H.P.
2—Goodman 660 Loaders on Crawlers, 440 V. AC. like new.
1—Goodman 665 Loader on Crawlers, latest type 250 V. DC.
1—Goodman 865 Loader, 26" hi. Rebuilt. 250 V. DC.
1—Goodman 660 Loader on Crawlers, excellent 250 V. DC.
4—Joy 8SC Shuttle Cars. rebuilt.
4—Joy 6SC Shuttle Cars, rebuilt, latest type
1—Joy 5SC Shuttle Car, Excellent.
2—Joy 32E9 Shuttle Cars.
2—Joy 32E10 Shuttle Cars, rebuilt.
6—Joy 32E15 Shuttle Cars, rebuilt.
4—Joy 32E16 Shuttle Cars, rebuilt.
10—42E16 Shuttle Cars, rebuilt.
1—Joy CD-22 Drills, on rubber, like new.
6—Joy T-2-5 low pan Crawler Trucks, rebuilt.
1—Joy T-2-6 low pan Crawler Truck with reel.
2—Joy T-1, Standard Crawler Trucks, 220 AC.
1—Joy T-1 Standard Crawler Truck, 250 DC.
4—Joy 11-B Cutting Mach., like new, 35 & 50 HP.
1—Joy 7-B Cutting Mach., like new, 250 V. DC.
2—Goodman 212 Cutting Machines, 19" high.
1—Goodman 312 Cutting Machine, 17" high.
3—Goodman 412 Cutting Machines, 19" high.
1—Goodman Machine on Crawler, 31" high. All hydraulic.
6—Goodman 512 Machines with Bugdusters.
6—Goodman 612 Cutting Machines, 250 & 500 volt.
1—Jeffrey 70 URB rubber tired Cutter. Universal head, perfect condition.
1—Goodman 2410 Rubber Tired Cutter, Universal head, like new.
3—Joy 11RU Rubber Tired Cutters, with bugdusters. Universal heads, dual tires, like new. 250 V. DC.
2—Joy 10RU Rubber Tired Cutters, Universal head, 220/440 V. A.C. Perfect.
4—Joy 10RU Rubber Tired Cutters, Universal head, 250 V. D.C.
6—7AU's on track, Universal head.
2—Jeffrey 29UC Cutting Machines, Universal head, cuts anywhere in seam, 38" high, on Crawlers, 250 volt D.C.
1—Jeffrey 29LC on Crawlers, rebuilt.

LOCOMOTIVES

1—Goodman 6 ton, 93-A, 27" high, armor plate frame.
1—Jeffrey 15 ton MH-77 locomotive, armor plate frame.
3—Jeffrey, 13 ton, type MH-110, 36",42",44" ga.
2—Jeffrey 10 ton, type MH 110, 42" and 44" ga.
2—Jeffrey, 10 ton, type MH-78, 42" and 44" ga.
2—Goodman 8-30 and 10-30 Locos., 26" above rail.
1—Jeffrey MH-121, 4 ton, like new, with reel, 24" overall height.
2—Jeffrey MH-150, 6 ton, 26" overall height, rebuilt, with reel.
12—Jeffrey, 6 ton, type MH-88, 42", 44" and 48" ga.
4—Jeffrey, 8 ton, type MH-100 2½" armor plate frames.
1—Jeffrey, 6 ton, type 2186, 22" above rail.
3—Jeffrey, 4 ton, type MH-96, 42", 44", 48" ga.
1—G.E., 4 ton, type 825 Locomotive, 22" high.
10—G.E., 6 ton, types 801, 803, 821 Locomotives. 42", 44" and 48" ga
1—G.E., 8 ton, type 822 Locomotive, 44" ga.
3—G.E., 10 ton, type 809 Locomotives, 42", 44" and 48" ga.
2—G. E. 13 ton, type 829 Locomotives, armor plate frames.
1—Goodman 91A Locomotive, 8 ton, 26" overall height.
2—Goodman, type 33, 6 ton, 44" and 48" ga.
3—Westinghouse type 902, 4 ton, 42" and 48" ga.
2—Atlas Battery Locomotives, 36" ga.
1—Atlas Trolley Locomotive, 4 ton, 24" high.
1—Ironton Battery Locomotive, 4 ton, 24" high, excellent, with charger.
2—Westinghouse, type 904, 6 ton, 44" and 48" ga.
2—Westinghouse, type 906, 44" and 48" ga.
2—Westinghouse, type 907, 10 ton, 44" and 48" ga.
8—Jeffrey MH-78 Locomotive Units, cheap.
4—Jeffrey MH-88 Locomotive Units, real bargains.
6—Jeffrey MH-100 Locomotive Units, resonable.
3—Plymouth Diesel Locomotives, 8 and 10 tons, 42" and 44" ga.
Locomotive Trucks & Spare Armatures for the above.

TIPPLE EQUIPMENT

1—All Steel 5 Track Tipple, new 1957, complete with washer, silo, oil treating system, all bolted construction.
1—Complete Five Track Tipple with Washers and Air Tables.
1—Complete stoker plant, all steel.
2—Complete Tipples, 3 & 5 track, steel and wood.
3—Cleaning Plants, 1 ea. McNally, Roberts and Schaefer, Jeffrey Washers and Air-Flo Tables.
4—Complete Aerial Trams for coal or refuse.
3—Complete Rope and Button Lines.
2—Monitor Lines complete with Drums, excel.
1—Allis-Chalmers 5 x 12 Rippflo Vibrator.
1—Allis-Chalmers 4 x 12 Low-Head Vibrator.
1—Robins Gyrex Vibrator, 4 x 10.
10—Belt and Apron type Loading Booms.
6—Shaker Screens.
1—Robins Car Shakeout.
20—Crushers, various sizes—Jeffrey, McLanahan & McNally.
4—Mine Scales, 10 & 20 ton.
5—Truck Scales, 25 to 40 ton, late type.
Feeders, Belt and Drag Conveyors, Car Retarders.

CUTTING MACHINES

2—Joy 10RU Rubber Tired Cutters, Universal head, 220/440 volt A.C. Perfect.
4—Joy 10RU Rubber Tired Cutters, Universal head, 250 V. D.C.
3—Joy 11RU Rubber Tired Cutters, 250 V. D.C.
1—Goodman 2410 Rubber Tired Cutter. Universal head, new 1956. Excellent.
2—Jeffrey 29UC Universal Machines on Crawlers
1—Goodman on Crawlers, 31" overall height.
3—Baby Goodman 212's, rebuilt. 250 V. D. C.
7—Goodman 212 Cutting Machines, 19" high.
4—Goodman 312 Cutting Machines, 17" high.
3—Goodman 412 Cutting Machines, 19" high.
6—Goodman 512's with Bugdusters, like new.
4—Goodman 512's, rebuilt, or as removed from service.
6—Goodman 612,s—250 & 500 Volt A. C.
3—Goodman 112's, 220/440 Volt A. C.
1—Joy 7-B Cutting Machine, 250 Volt D. C.
4—Joy 11B Cutting Machines, rebuilt, 35 & 50 H. P.
6—7AU's, on track, Universal head.
10—Goodman 12AA's and 112AA's, 220 V. D. C.
2—Goodman 324 Slabbers.
2—Goodman 724 Slabbers.
2—Goodman 824 Slabbers.
6—Jeffrey 35L's, like new, 250 V. D. C. 17" high.
2—Jeffrey 35L's, on low vein trucks.
2—Jeffrey 35L's, 220/440 A. C.
3—Jeffrey 35BB's 220/440 A. C.
15—Jeffrey 35B's and 35BB's 250 V. D. C.
2—Jeffrey 29B's on track.
10—Jeffrey 29C's track mounted.
2—Jeffrey 29L's, on Crawlers. Excellent.
1—Sullivan CE7, 220/440 V. A. C.

CONVEYORS

1—Robins 36" tandem drive, with or without structure.
2—Jeffrey 52-B tandem drive 30" Belt Conveyors 1,500'.
1—Jeffrey 52-B tandem drive 36" Belt Conveyor.
1—Joy 30" Underground Belt Conveyor. Excell.
1—Goodman 97-C, 30" tandem drive.
1—Goodman 97-C. 26" Conveyor. 1,000 long.
1,200' Robins 36" Underground Structure, like new.
1,000' Conveyor Belt, 42".
1,000' Conveyor Belt, 36".
3,000' Conveyor Belt, 30".
4,000' Conveyor Belt, 26".
8—Jeffrey 61AM 12" Chain Conveyors, 300'.
2—61EW Elevating Conveyors.
2—61WH 15" Room Conveyors, 300'.
2—Joy 15" Room Conveyors, 300'.
2—Joy 20" Conveyors, 300'.
4—Joy Ladel UN-17 Shakers.
10—Goodman G-12½ and G-15 Shakers.
1,000' Goodman 18" Flat Belt Conveyors, tandem drive any length, Perfect.

CONVERTORS AND DIESEL PLANTS

1—200KW Portable Rectifier, 3 car unit, excellent.
2—500KW G. E. Stationary Rectifiers.
4—1,000KW Stationary Rectifiers.
2—100KW. G. E. TCC-6's, 275 V., Rotary Converter.
1—150KW. G. E. HCC-6 275 V., Rotary Converters.
1—150KW. 6 phase. Allis-Chalmers Rotary Converters, 275 V. D. C.
2—200KW G. E. HCC-6's, Rotary Convertors, 275 V. D. C. Steel frames, Newly rewound.
3—300KW G. E. HCC-6's Rotary Converters, 275 V. D. C. Like New.
2—300KW Westinghouse, 6 phase, Rotary Converters, 275 V. D. C.
2—500KW. West. Rotary Converters, 275 V. D.C. Perfect.
2—200KW Westinghouse Rotary Converters, 275 V. D.C. Newly Rewound.
(All the above with 6900/13000 and/or 2300/4000 primary transformers).
2—100KW M6 Sets, 275 V. D.C.
2—150KW MG Sets, G.E. and West., 275 V. D.C.
1—200KW MG Set, rebuilt, 275 V. D. C.
1—250KW MG Sets, G. E. perfect, 275 V. D. C.
2—300KW G E. MG Sets, like new.
1—300KW West. 600 volt MG Set, rebuilt.
2—300KW Westinghouse, 600 volt, 6 phase. Rotary Converters.
2—500KW Westinghouse, 600 volt, D.C., 6 phase, Rotary Converters.
2—500KW HCC-6's, Rotary Converters, 6 phase, 600 V. D.C.
1—GMC-471 Diesel with 60KW, 250 V. D.C. Gen.
2—GMC-671 Diesels with 75KW, 250 V. D.C. Gen.
1—Cummins 125KW Diesel with 250 V. D.C. Gen.
1—Allis-Chalmers Natural Gas Engine with 100 KW Generator, 275 V. D.C.
Boilers, like new. 500 H.P.

LOADING MACHINES

16—Joy Loaders, 14BU, 12BU, 8BU, 11BU, 20BU.
5—Joy 12BU9E Loaders, 220/440 V. A.C. Excellent.
3—Joy 12BU9E Loaders, latest type.
2—Joy 12BU with Piggyback Conveyors.
2—Goodman 865 Loaders, 26", on crawlers.
1—Goodman 665 Loader, on Crawlers, rebuilt.
2—Goodman 660 Loaders, 440 V. A. C. perfect.
1—Goodman 660 Loader, on Crawlers, 250 V. DC.
1—Goodman 460, on track, rebuilt, all hydraulic.
2—Jeffrey 61 CLR's on rubber, 26".
3—Jeffrey L-500 Loaders.
2—Myers Whaley, No. 3 Automatic Loaders.
2—Clarkson Loaders, 26" above rail.

MISCELLANEOUS

1—Complete Flue Track Tipple with Washers and Air Tables.
5—Complete Tipples, 3 to 5 Track. Wood and Steel.
Steel trestles for drop bottom cars.
All Steel Armco Buildings.
20—Jeffrey Molveyors on rubber tires.
1—¾ Yard Shovel and Back-Hoe.
1—¾ Yard Crawler Crane.
Battery Supply Tractors, Rubber Tired.
1—Cantrell Air Compressor on rubber tires.
10—Air Compressors, 1 H.P. to 40 H.P.
2—Joy self-propelled rubber tired comp., 240 cu. ft.
2—Acme self-propelled rubber tired compressors, 130 cu. ft.
40—Mine Pumps, all types.
1—Differential 40 passenger Man-Trip car.
6—MSA Rock Dusters.
2—Phillips Carriers, 44" and 48" ga.
1—Barber-Greene self-propelled Bucket Elevator.
Pipe, Plastic, Steel Transit, all sizes 1" to 6".
30—Mine Cars, drop bottom, 42" ga.
90—Mine Cars. drop bottom, 44" ga.
50—Mine Cars, drop bottom 48" ga.
100—Mine Cars, 18" high, end dump, 44" ga.
300—Mine Cars, end dump and drop bottom, 20" high, 48" ga.
1—10 ton Mine Car Scale with Recorder.
1—Brown Fayro Hydraulic Car Spotter.
51—Brown Fayro HKL and HG Car Spotter.
1—12 ton Differential Slate Larry.
Incline Hoists, 25 to 50 H. P.
1—Jeffrey 5' Aerodyne Fan, like new.
1—Jeffrey 6' Aerodyne Fan.
2—Storage Tanks, 4,000 Gallons.
2—Storage Tanks, 10,000 Gallons.
10,000 Five Gallon G. I. Cans, screw lids.
2,500 tons Relaying Rail, 25 lb., 30lb., 40lb., 50lb., 60lb., 70lb.
30 Tons Copper—4/0 and 9 Section Trolley 1/0, 2/0, 4/0 Stranded.
Thousands of feet of rubber covered three conductor cable. All sizes.
300—Transformers from 1 to 300 KVA, 110 to 13,000 primary volts.
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Huge Stock of Mine Supplies.
600—MSA Mine Lamps,Chargers, etc.
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5 Truck Scales, 25 to 40 tons, late type.
Mack & International tandem dump trucks.
THOUSANDS OF OTHER ITEMS.

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FOR FAST, LOW-COST HANDLING OF COAL, AGGREGATE, ORE

Look at the performance-proven facts!

• SAVES TIME when dumping—you get more round trips which means more payloads. • MINIMUM MAINTENANCE—there's little to get out of order. • RUGGEDLY BUILT to withstand severe usage. • SINGLE AND TANDEM AXLE units for highway use according to state road law. FOR OFF-HIGHWAY use in coal, aggregates, ore. • CAPACITIES—10 to 100 cubic yards. • CENTER PARTITION available to provide two compartments for better load distribution and extra side support. • DOUBLE OR SINGLE sets of doors lengthwise or cross doors for dumping and spreading. • IDEAL FOR CONTROLLED SPREADING of aggregate on road jobs with power operated or manual door opening. • EACH HOPPER is job engineered to fit your operation and the material to be hauled. Your nearby Marion Distributor will be glad to give you full details on Marion Hoppers best suited to your operation. Marion makes a complete line of hydraulic hoists and dump bodies.

MARION METAL PRODUCTS CO.
Marion, Ohio, U.S.A.

Marion Long-Life Hopper Trailers

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Sworn and subscribed before me this 12th day of October 1959.

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Notary Public

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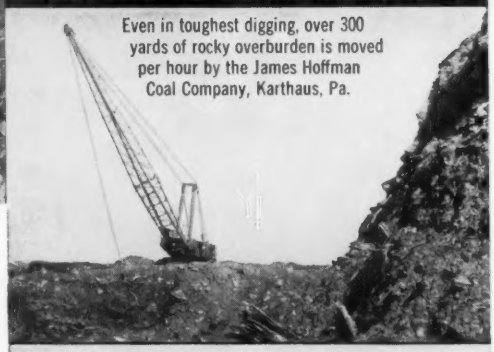

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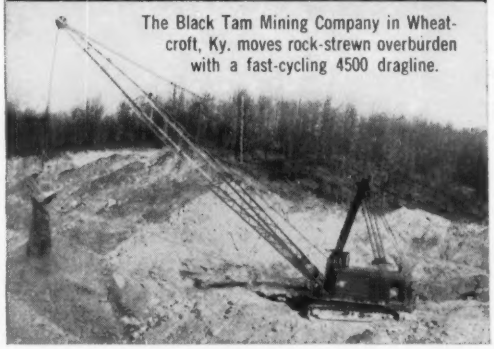

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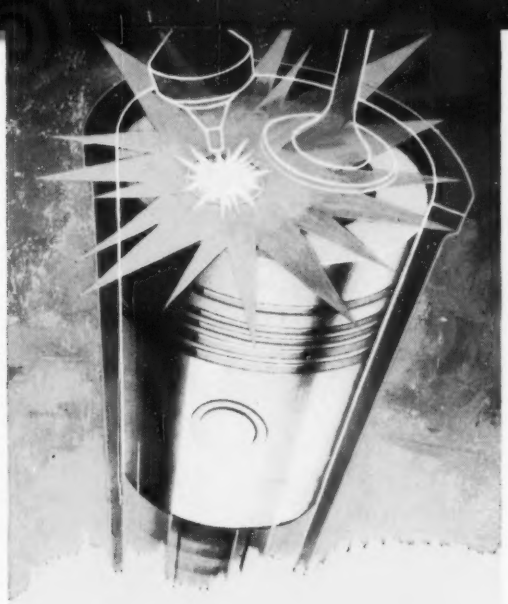

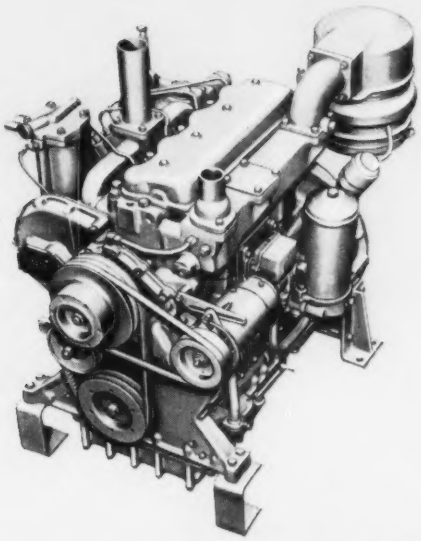

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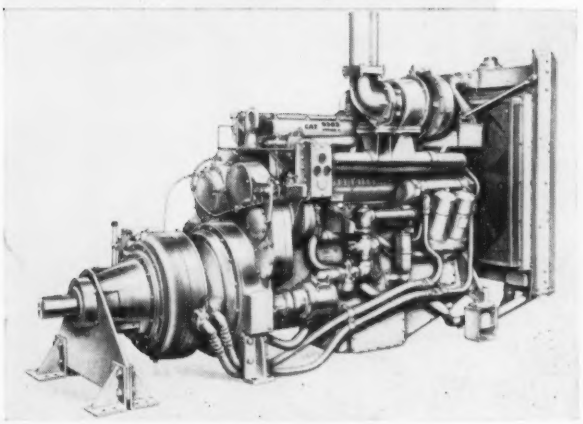

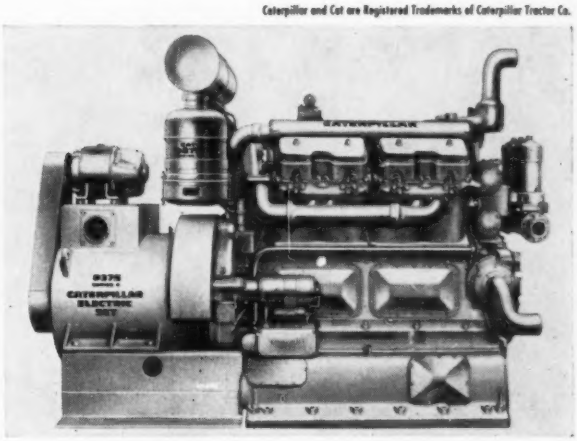

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